**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**
**Before the Board of Patent Appeals and Interferences**

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| Applicant | : | Michel Anthony Pugel |
| Serial No. | : | 09/853,001 |
| Atty. Docket No.: | | PU010081 |
| Filed | : | May 10, 2001 |
| For | : | ECONOMICAL EXTENSION OF THE OPERATING DISTANCE OF AN RF REMOTE LINK ACCOMMODATING IR REMOTE CONTROLS HAVING DIFFERING IR CARRIER FREQUENCIES |
| Examiner | : | Shi K. Li |
| Art Unit | : | 2633 |

## APPEAL BRIEF

May It Please The Honorable Board:

This is Appellant's Brief on Appeal from the final rejection of claims 19, 20, and 22–38. Please charge the $330.00 fee for filing this Brief to Deposit Account No. 07-0832. Appellant waives an Oral Hearing for this appeal.

Please charge any additional fee or credit overpayment to the above-indicated Deposit Account. Enclosed is a single copy of the Brief.

## I. REAL PARTY IN INTEREST

The real party in interest of Application Serial No. 09/853,001 is the Assignee:

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## II. RELATED APPEALS AND INTERFERENCES

There are currently, and have been, no related Appeals or Interferences regarding Application Serial No. 09/853,001 known to the undersigned attorney.

## III. STATUS OF THE CLAIMS

Claims 19, 20, and 22-38 are rejected and the rejection of claims 19, 20, and 22-38 are appealed.

## IV. STATUS OF AMENDMENTS

The amendment filed July 20, 2004 in response to the FINAL Office Action has been entered according to the Advisory Action dated August 4, 2004, which continues to reject the claims. All amendments are reflected in the claims included in Appendix I.

## V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 19 claims a control device (24) for extending an effective control range of a first control device (20) for controlling an IR controllable device (10 and page 1, lines 30-32), the control device (24) comprising: a receiver (26) for receiving from the first control device a first control signal having a first data segment for control information (FIGs. 2 and 3, and page 6, lines 27-29); and means (page 5, lines 6-10) for extracting an IR carrier frequency from the first control signal and means (30) for transmitting a RF signal having a second data segment for the control information and the IR carrier frequency (FIGs. 4 and 5, page 5, lines 1-4 and 32-34), wherein the RF signal is adapted to be received by a second control device (38) that converts the RF signal into an IR control signal for controlling the IR controllable device, the IR control signal having an IR carrier with the IR carrier frequency and having a data segment for the control information (page 5, lines 6-9 and page 5, line 32-page 6, line 1).

Independent claim 33 claims a control device (38) for extending an effective control range of a first control device (24) for controlling an IR controllable device (10), the control device (38) comprising: a RF receiver (36) for receiving from the first control device (24) a RF control signal having a data segment for control information and an IR carrier frequency (FIGs. 4 and 5, page 5, lines 1-4 and 32-34), wherein the IR carrier frequency is extracted by the first control device (24 and page 5, lines 6-10) from a received IR control signal having the IR carrier frequency (FIGs. 2 and 3, and page 6, lines 27-29); and an IR transmitter (42) for transmitting a first IR control signal for controlling the IR controllable device (10, and page 5, lines 6-10), the first IR control signal having a data segment for the control information and having a carrier with the IR carrier frequency (FIGs. 2 and 3).

Independent claim 35 claims a control device (24 and 38) for extending an effective control range of a first control device (18) for controlling an IR controllable device (10), the control device (24 and 38) comprising: a receiver (24) for receiving from the first control device (18) a first control signal having an IR carrier frequency and having a data segment for control information (FIGs. 2 and 3, and page 6, lines 27-29), wherein the receiver (24) extracts the IR carrier frequency from the first control signal (page 5, lines 6-10); and an IR transmitter (38 and page 5, lines 6-10) for receiving the extracted IR carrier frequency and transmitting an IR control signal for controlling the IR controllable device (10), the IR control signal having a data segment for the control information and having a carrier with the extracted IR carrier frequency (FIGs. 2 and 3).

Independent claim 37 claims a control device (18) for controlling an IR controllable device (10), the control device comprising: a transmitter (18) for transmitting a first control signal (FIGs. 2 and 3) having an IR carrier frequency and a

data segment for control information, wherein the first control signal is adapted to be received by a second control device (24 and 38) that extracts the IR carrier frequency and produces an IR control signal having a data segment for the control information, and having a carrier with the extracted IR carrier frequency (page 5, lines 6-10).

## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The Examiner has rejected claims 19, 23-28, and 33-37 as being unpatentable over U.S. Patent 4,897,883 ("Harrington") in view of U.S. Patent 5,227,780 ("Tigwell"), JP Patent Publication P2001-8278A ("Eisaku"), and U.S. Patent 4,856,081 ("Smith").

The Examiner has rejected claims 19-22, 33-35, and 37-38 as being unpatentable over U.S. Patent 6,400,480 ("Thomas"), in view of Tigwell, Eisaku, and Smith.

The Examiner has rejected claims 29-32 as being unpatentable over Harrington in view of Tigwell, Eisaku, and Smith as applied to claims 19, 23-28, and 33-37, and further in view of U.S. 6,130,910 ("Anderson").

The Examiner has rejected claims 29-32 as being unpatentable over Thomas in view of Tigwell, Eisaku, and Smith as applied to claims 19-22, 33-35, and 37-38, and further in view of Anderson.

## VII. ARGUMENT

### Rejection of claims 19, 23-28, and 33-37 as being unpatentable over Harrington in view of Tigwell, Eisaku, and Smith

CLAIMS 19, and 23-28

Independent claim 19 recites a control device for extending an effective control range of a first control device for controlling an IR controllable device. The control device includes a receiver for receiving from the first control device a first control signal

having a first data segment for control information; means for extracting an IR carrier frequency from the first control signal and means for transmitting a RF signal having a second data segment for the control information and the IR carrier frequency. This RF signal is adapted to be received by a second control device that converts the RF signal into an IR control signal for controlling the IR controllable device, and the IR control signal has an IR carrier with the IR carrier frequency and a data segment for the control information.

As pointed out in the Office Action dated May 7, 2004, Harrington does not teach the feature of extracting an IR carrier frequency from an incoming control signal and transmitting a RF signal having a data segment for both the extracted IR carrier frequency and the control information extracted from the incoming control signal, as recited in claim 19. The Office Action, however, relies upon the teaching of Tigwell, stating that it is not desirable to have an RF signal amplitude modulated by an IR carrier frequency and control information of an IR control signal, and that some encoding method is needed for such an amplitude modulated RF signal to comply with FCC rules, the teaching of Eisaku of a message format shown in FIG. 9 for transmitting carrier information and control code in a data segment to a remote control device, and the teaching of Smith for a method for determining carrier frequency of an IR control signal, and concludes that a skilled artisan can arrive at the claimed invention by modifying the system disclosed in Harrington with the combined teachings of Tigwell, Eisaku, and Smith.

Applicant submits that there is no motivation to modify the system disclosed in Harrington with the combined teaching of Tigwell, Eisaku, and Smith in the manner suggested by the Examiner, as discussed below.

Harrington discloses an IR signal extender for extending the operational range of an IR data link. The extender includes means 14 for transmitting a signal, and means 4 for receiving the signal and producing an IR signal 12 corresponding to the received signal for controlling a device 1. See FIG. 1, and col. 2, lines 43-46. The means 14 includes an IR transmitter 3 and a repeater unit 5. See FIG. 1. The repeater unit 5 (relied upon as the extracting means) converts IR signal transmitted by the IR transmitter 3 into FM radio signal form. See col. 3, lines 25-28. The means 4, having an emitter 6, recreates the IR signal from the FM radio signal. See FIG. 1, and col. 3, lines 28-38. As shown in FIG. 3, the repeater 5 converts the incoming IR radiation signal into an electrical signal, which, after being amplified, becomes the modulating input of a FM transmitter 13. The radio frequency energy of the FM transmitter 13 is then radiated by an antenna 14 of the repeater 5. See FIG. 3, and col. 3, lines 54-57. The means 4 receives the RF signal and converts the FM signal back to an IR signal for controlling the IR controllable device. See FIG. 4. Nowhere does Harrington disclose or suggest that the repeater 5 (relied upon as the extracting means) extracts "an IR carrier frequency from the first control signal" and that the FM signal (relied upon as the RF signal) has a data segment for "the IR carrier frequency," as recited in claim 19.

Tigwell discloses a transponder 12 with a portable UHF radio transmitter remote 10 for controlling one or more of IR controllable appliances. See FIGs. 1 and 2. The transponder 12 stores the information necessary to mimic or replicate IR codes. See col. 3, lines 3-6. The UHF remote 10 transmits a data frame containing a 7-bit data word, which is used by the transponder 12 to retrieve the corresponding stored information for producing an IR signal for controlling one of the IR controllable devices. See col. 3, lines 6-17. Thus, the correlation between the stored IR code information

and the UHF signal is pre-established, for example, through learning, before the use. See col. 3, lines 33-40. The transponder 12 learns this correlation by receiving both an IR control signal from an IR remote designed for controlling an IR controllable device and a RF control signal generated by a user pressing a key on the UHF remote 10. See col. 3, lines 41-56.

As discussed above, the 7-bit data word does not include control information for controlling an IR controllable device. The 7-bit data word functions like an address for the transponder 12 to find a mapped IR control signal in the memory. As such, the 7-bit word does not contain the same digital value of the control information of the mapped IR control signal, and does not represent an IR carrier frequency extracted from an IR control signal. Therefore, the data segment in a RF control signal used in the system disclosed in Tigwell does not include control information extracted from an IR control signal and does not include IR carrier frequency extracted from an IR control signal, as recited in claim 19.

Tigwell, at col. 1, lines 47-55, states that if an RF signal is produced by a RF carrier amplitude modulated (AM) by both the carrier frequency and the control information of a corresponding IR control signal, the RF signal would violate the FCC rules. However, since the system disclosed in Harrington uses FM not AM, the stated problem does not exist and a person skilled in the art would have no motivation to modify the system disclosed in Harrington to use AM and the 7-bit work scheme as taught by Tigwell.

Furthermore, the Advisory Action dated August 4, 2004 points out that a RF signal produced by a RF carrier AM modulated by both IR carrier frequency and control information will not violate FCC rules. Thus, even if the system in Harrington is

modified to use the AM, a person skilled in the art would have no motivation to modify the system disclosed in Harrington to use the 7-bit word scheme as taught by Tigwell because there is no need to do so.

Furthermore, Tigwell solves a completely different problem: while Tigwell solves the problem of controlling IR controllable devices using an RF remote control by converting an RF signal into an IR signal, Harrington solves the problem of extending an IR control signal by converting an IR signal into an RF signal. Although Harrington also converts the RF signal back to the IR signal, Harrington uses a different method: the RF signal in Harrington is generated by an RF carrier modulated by both an IR carrier frequency and IR control information of a corresponding IR control signal, and can be directly converted back to the corresponding IR control signal, whereas the RF signal in Tigwell includes a 7-bit word, that a receiver can use to find a corresponding RF control signal in a memory. As such, there is no motivation to modify the system disclosed in Harrington to use the 7-bit word scheme as taught in Tigwell.

Furthermore, in Harrington, the repeater 5 (relied upon as the extracting means) cannot and does not interpret the meaning of an incoming IR control signal. In fact, it does not even try to detect the beginning and end of a control signal in the incoming IR signal. As such, it is impossible to modify the repeater 5 to convert a received IR control signal into a 7-bit code word and transmit that 7-bit code word in a RF signal, as taught by Tigwell.

Furthermore, after reading Tigwell, a person skilled in the art would be discouraged to modify Harrington to incorporate the teaching of Tigwell because doing so would mean adding microprocessors and associated software/firmware in the repeater unit 5 and the means 4 of the system disclosed in Harrington. See FIGs. 3

and 4 of Harrington. A microprocessor at the repeater would be needed to determine the type of an incoming IR control signal and assign a different 7-bit word for a different incoming IR control signal. A microprocessor is also needed at the means 4 to do the reverse for reproducing the corresponding IR control signal. In effect, the whole system is not merely modified -- it is amount to a complete redesign. As such, Tigwell can be said to teach away because a person of ordinary skill, upon reading Tigwell, would be discouraged from following the path set out in Tigwell. See in re Gurley, 31 USPQ 2d 1130, 1131 (Fed. Cir. 1994).

Eisaku also does not disclose or suggest a remote control device includes "means for extracting an IR carrier frequency from the first control signal and means for transmitting a RF signal having a second data segment for the control information and the IR carrier frequency," as recited in claim 19. Eisaku actually discloses a remote control signal transmission system, provided with a multi-remote control function having high efficiency, and controlling devices placed at a plurality of points. See Abstract. In the following discussion of the system, please refer to FIG. 1 and the Abstract. The system includes a remote commander 4 at point 2 transmitting an IR remote control signal 9 using a carrier frequency B. A transmitter 5 (or "transfer unit" as used in the English translation attached to the Office Action dated November 20, 2003) at point 2 calculates a carrier frequency A of a device 3 in point 1, and transmits a remote control code signal 10 (as shown in FIG. 9) including the calculated carrier frequency A and the control information in a data segment. The control code signal 10 is used by components in point 1 to produce a corresponding IR signal having carrier frequency A. The transmitter 5 only has to recognize one kind of carrier frequency B, thus reducing the cost and size of the transmitter 5. Therefore, unlike the present invention, the

transmitter 5 cannot be used with a different remote commander having a different IR carrier frequency.

As pointed out earlier, Eisaku does not disclose or suggest a remote control device, as recited in claim 19. Even if we interpret the whole system as a remote control device, Eisaku does not disclose or suggest means for extracting an IR carrier frequency from a received control signal, as recited in claim 19. The carrier frequency B in the IR remote control signal 9 is fixed and already known by the transmitter 5. As such, the transmitter 5 does not have to extract the carrier frequency from the IR control signal 9. In addition, since the carrier frequency A used in the IR control code signal 10 is not the carrier frequency B in the IR remote control signal 9, the remote control code signal 10 does not need a data segment for the IR carrier frequency B. As such, Eisaku does not disclose or suggest a remote control includes "means for extracting an IR carrier frequency from the first control signal and means for transmitting a RF signal having a second data segment for the control information and the IR carrier frequency," as recited in claim 19.

Furthermore, there is no teaching or suggestion in Eisaku to use the format of the signal 10 in the system disclosed in Harrington because using the format of the signal 10 disclosed in Eisaku would require the system disclosed in Harrington to add a microprocessor at the repeater 5 to determine the carrier frequency of an incoming IR control signal and the control signal carried by the incoming signal, and another microprocessor at the means 4 to retrieve and reproduce the IR carrier. As such, Smith also can be said to teach away because a person of ordinary skill, upon reading Smith, would be discouraged from following the path set out in Smith. See in re Gurley, 31 USPQ 2d 1130, 1131 (Fed. Cir. 1994).

In fact, there is also no motivation to modify the system disclosed in Tigwell to use the format of signal 10 disclosed in Eisaku because 1) the UHF transmitter remote 10 in Tigwell would have to know the exact format of the remote control signal to be emulated, and 2) the transponder 12 has to measure the IR carrier frequency of an emulated remote control signal, and inform the UHF transmitter remote 10, so that the UHF transmitter remote 10 can use it in a corresponding RF remote control signal. In effect the one-way communication discussed in Tigwell from the UHF remote 10 to the transponder 12 is not sufficient anymore. A two-way communication between the UHF remote 10 and the transponder 12 must be established.

Smith does not disclose or suggest an IR extender. Thus, there is no motivation to modify the system disclosed in Harrington to determine the IR carrier frequency as taught in Smith, which discloses a reconfigurable universal remote for emulating IR remote controls controlling different controllable devices.

Although Smith discloses determining and storing the carrier frequency of a control signal from a remote control to be emulated by the universal remote, Smith does not disclose or suggest means for transmitting a RF signal having a second data segment for the extracted control information and the extracted IR carrier frequency, as recited in claim 19, because the universal remote directly generates a corresponding IR control signal from the stored data.

Smith actually discloses a reconfigurable remote control apparatus and method for capturing the signals of remote control devices having at least the following two different protocols: signals with bursts of different lengths at a carrier frequency followed by pauses of different lengths (carrier type), or signals with pauses of a relatively constant length followed by pauses of different length (non-carrier type). See

the Abstract. The reconfigurable remote control apparatus determines which type of protocol that it receives from a remote control to be emulated. See col. 5, lines 22-27. If the reconfigurable remote control apparatus determines that the protocol is of the non-carrier type, it determines the pause length between each pause, and if the protocol is of the carrier type, the reconfigurable remote control apparatus determines the carrier frequency and the duration of pulse burst and pause. See col. 5, lines 31-42. In either case, the reconfigurable remote controller saves the determined information in a memory. See col. 5, lines 42-47.

Similar to Tigwell, a person skilled in the art after reading Smith would be discouraged to modify Harrington to incorporate the teaching of Smith because doing so would mean adding microprocessors and associated software/firmware in the repeater unit 5 and the means 4 of the system disclosed in Harrington. See FIGs. 3 and 4 of Harrington. A microprocessor at the repeater 5 would be needed to determine the carrier frequency of an incoming IR control signal and the control signal carried by the incoming signal, and another microprocessor at the means 4 to retrieve and reproduce the IR carrier. As such, Smith also can be said to teach away because a person of ordinary skill, upon reading Smith, would be discouraged from following the path set out in Smith. See in re Gurley, 31 USPQ 2d 1130, 1131 (Fed. Cir. 1994).

Since there is no motivation to modify the system disclosed in Harrington to use 7-bit word scheme as taught by Tigwell, there is no need to modify the system disclosed in Harrington (by adding microprocessors and associated software/firmware) to determine the IR carrier frequency as taught by Smith and the message format as taught by Eisaku.

In fact, as discussed above, Harrington does not teach the feature of extracting an IR carrier frequency from an incoming control signal and transmitting a RF signal having a data segment for both the extracted IR carrier frequency and the control information extracted from the incoming control signal, as recited in claim 19, and there is no motivation to modify the system disclosed in Harrington with the teachings of Tigwell, Eisaku, and Smith in the manner suggested by the Examiner, applicant submits that claim 19, and dependent claims 23-28, are patentable over these four references.

CLAIMS 33 and 34

Applicant submits that the arguments made above with respect to claim 19 are also applicable to independent claim 33, and submits that claim 33, and dependent claim 34, are patentable over the four references.

CLAIMS 35 and 36

Applicant submits that the arguments made above with respect to claim 19 are also applicable to independent claim 35, and submits that claim 35, and dependent claim 36, are patentable over the four references.

CLAIMS 37 and 38

Applicant submits that the arguments made above with respect to claim 19 are also applicable to independent claim 37, and submits that claim 37, and dependent claim 38, are patentable over the four references.

**Rejection of claims 19, 20, 22, 33-35, and 37-38 as being unpatentable over Thomas in view of Tigwell, Eisaku, and Smith**

CLAIMS 19, 20, and 22

Applicant respectfully submits that there is no motivation to modify the system disclosed in Thomas with the teachings of Tigwell, Eisaku, and Smith in the manner

suggested by the Examiner, and even if the system disclosed in Thomas is modified in the manner as suggested by the Examiner, the modified system still does not include the means for extracting an IR carrier frequency from an incoming control signal, as recited in claim 19, applicant submits that claim 19, and dependent claims 20 and 22, are patentable over the four references.

Thomas discloses a battery module transceiver 5 for extending the range of an IR controller 1. See col. 1, lines 39-41, and FIG. 1. The battery module transceiver 5 can be fit in the battery chamber of an IR remote to detect an IR signal generated by the IR remote and convert it into radio waves without changing or modifying the exterior structure of the conventional IR remote. See col. 1, lines 52-60. The battery transceiver 5 detects an RF signal 4 accompanying the emission of the IR signal 3, and generates a RF signal 7, which is received by a second transceiver 6. See FIG. 1, and col. 2, line 61-col. 3, line 3. Thomas teaches the use of FM, if modulation is used, in the RF signal 7. See col. 3, lines 26-30. The second transceiver 6 thereafter converts the received RF signal to an IR signal 8, which corresponds to the IR signal 3 emitted by the IR remote. See col. 3, lines 4-8.

The battery transceiver 5 (relied upon as the remote control device, as recited in claim 19) includes a battery power supply 51, RF signal detector 52', and a transmitter 53. However, as admitted by the Examiner, the battery transceiver 5 cannot extract an IR carrier frequency from the RF signal 4 that the battery transceiver 5 has received. This is because Thomas does not disclose or suggest that the RF signal 4 from the IR controller 1 includes an IR carrier frequency. As such, Thomas does not disclose or suggest the feature of extracting an IR carrier frequency from the RF signal 4 and transmitting the RF signal 7 having a data segment for both the extracted IR carrier

frequency and the control information extracted from the RF signal 4, as recited in claim 19.

As discussed above, the IR controller 1 generates both the IR signal 3 and the RF signal 4 at the same time. As such, we should not interpret the IR controller 1 as the remote control device as recited in claim 19, because it does not receive an incoming control signal, does not extract an IR carrier frequency from an incoming control signal, and does not transmit a RF signal having a data segment for the control information and the extracted IR carrier frequency, as recited in claim 19.

The Examiner, however, suggests that the RF signal 4 transmitted by the IR controller 1 or the RF signal 7 transmitted by the battery transceiver 5 can use the 7-bit word scheme using AM as taught by Tigwell to comply with the FCC rules. Like Harrington, Thomas uses FM. As such, the stated AM problem does not exist for the system disclosed in Thomas. In fact, Thomas teaches against the use of AM, stating that if modulation is used, it uses FM. See col. 3, lines 26-30.

Furthermore, as discussed earlier, the Advisory Action dated August 4, 2004 points out that a RF signal using AM including both IR carrier frequency and control information will not violate FCC rules. Thus, even if the system in Thomas is modified to use the AM, a person skilled in the art would have no motivation to modify the system disclosed in Harrington to use the 7-bit word scheme as taught by Tigwell.

Furthermore, even if RF signal 7 transmitted by the battery transceiver 5 (relied upon as the remote control device) uses the 7-bit word scheme and AM as taught by Tigwell, the modification still does not arrive at claim 19, because the combination still does not include means for extracting an IR carrier frequency from the RF signal 4, and

means for transmitting a RF signal having a second data segment for the extracted control information and the extracted IR carrier frequency.

The Examiner, however, relies on Smith, stating that the battery transceiver 5 in Thomas can be modified to extract an IR carrier frequency from the RF signal 4, and relies on Eisaku, stating that the 7-bit word can be replaced by the format of signal 10 disclosed in Eisaku, which includes an IR carrier frequency and control information. Applicant respectfully disagrees.

As discussed earlier, the reconfigurable remote control can determine the IR carrier frequency from an IR control signal transmitted from a remote control to be emulated. The battery transceiver 5 in the system disclosed in Thomas, however, receives the *RF* signal 4, which is not an IR signal. As such, the battery transceiver 5 cannot determine an IR carrier frequency using the method as taught by Smith.

Applicant also disagrees with the Examiner's suggestion for replacing the 7-bit word scheme disclosed in Tigwell with the format of the signal 10 disclosed in Eisaku, because, as discussed earlier, there is no motivation to do. Even if there is motivation to do so, the modified system still does not arrive at claim 19 because, as discussed above, the battery transceiver 5 in the system disclosed in Thomas cannot determine an IR carrier frequency using the method as taught by Smith. Thus, the modified system as suggested by the Examiner still fails to include the means for extracting an IR carrier frequency from an incoming control signal, as recited in claim 19.

In light of the fact that there is no motivation to modify the system disclosed in Thomas with the teachings of Tigwell, Eisaku, and Smith in the manner suggested by the Examiner, and even if the system disclosed in Thomas is modified in the manner as suggested by the Examiner, the modified system still does not include the means for

extracting an IR carrier frequency from an incoming control signal, as recited in claim 19, applicant submits that claim 19, and dependent claims 20 and 22, are patentable over the four references.

CLAIMS 33 and 34

Applicant submits that the arguments made above with respect to claim 19 is also applicable to independent claim 33, and submits that claim 33, and dependent claim 34, are patentable over the four references.

CLAIM 35

Applicant submits that the arguments made above with respect to claim 19 are also applicable to independent claim 35, and claim 35 is patentable over the four references.

CLAIMS 37 and 38

Applicant submits that the arguments made above with respect to claim 19 is also applicable to independent claim 37, and submits that claim 37, and dependent claim 38, are patentable over the four references.

**Rejection of claims 29-32 as being unpatentable over Harrington in view of Tigwell, Eisaku, and Smith as applied to claims 19, 23-28, further in view of Anderson**

CLAIMS 29-32

Anderson does not cure the defect of Harrington, Tigwell, Eisaku, and Smith as applied to independent claim 19. Anderson discloses an apparatus for high efficiency wideband power amplification. It is not concerned with the problem of extending an effective range of a remote control for controlling an IR controllable device. As such, Anderson does not disclose or suggest a control device having "means for extracting an

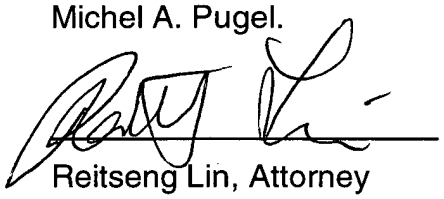
IR carrier frequency from the first control signal and for means for transmitting a RF signal having a second data segment for the control information and the IR carrier frequency," as recited in claim 19. Therefore, applicant respectfully submits that claim 19, and dependent claims 29-32, are patentable over the five references.

**Rejection of claims 29-32 as being unpatentable over Thomas in view of Tigwell, Eisaku, and Smith, as applied to claim 19, further in view of Anderson**

Applicant respectfully submits that these claims 29-32 are patentable over these five references for their direct and indirect dependence from independent claim 19.

As discussed earlier, claim 19 is patentable over Thomas in view of Tigwell, Eisaku, and Smith. From the earlier discussion of Anderson, Anderson also fails to cure the defect of Thomas, Tigwell, Eisaku, and Smith as applied to claim 19. Thus, claim 19, and dependent claim 29-32, are patentable over the five references.

Respectfully submitted,
Michel A. Pugel.

By: 

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## APPENDIX I - APPEALED CLAIMS

1-18. (cancelled)

19. (previously presented) A control device for extending an effective control range of a first control device for controlling an IR controllable device, the control device comprising:

a receiver for receiving from the first control device a first control signal having a first data segment for control information; and

means for extracting an IR carrier frequency from the first control signal and means for transmitting a RF signal having a second data segment for the control information and the IR carrier frequency, wherein the RF signal is adapted to be received by a second control device that converts the RF signal into an IR control signal for controlling the IR controllable device, the IR control signal having an IR carrier with the IR carrier frequency and having a data segment for the control information.

20. (previously presented) The control device of claim 19 wherein the IR carrier frequency is included in the first data segment of the first control signal and the receiver identifies the IR carrier frequency by extracting a portion of the first data segment designating the IR carrier frequency.

21. (cancelled)

22. (previously presented) The control device of claim 20 wherein the portion of the first data segment designating the IR carrier frequency is at least four bits long.

23. (previously presented) The control device of claim 19 wherein the first control signal is an IR signal.

24. (previously presented) The control device of claim 23 wherein the first control signal is transmitted with an IR carrier and the extracting means extracts the IR carrier frequency by determining a frequency of the IR carrier.

25. (previously presented) The control device of claim 23 wherein the transmitting means does not transmit the IR carrier.

26. (previously presented) The control device of claim 19 wherein the RF signal is amplitude shift keying modulated.

27. (previously presented) The control device of claim 19 wherein the RF signal can be received by a plurality of second control devices with respective controllable devices.

28. (previously presented) The control device of claim 19 wherein the first control device is disposed in a common housing with the control device.

29. (previously presented) The control device of claim 19 wherein a power supply of a stage of the transmitting means is modulated by a version of the first control signal.

30. (previously presented) The control device of claim 29 wherein the power supply is modulated by 100 percent signal output capability from the first control device.

31. (previously presented) The control device of claim 29 wherein the power supply is modulated by less than 100 percent signal output capability from the first control device.

32. (previously presented) The control device of claim 29 wherein the transmitting means is overmodulated and has a duty cycle "on" time which is shorter than an "off" time.

33. (previously presented) A control device for extending an effective control range of a first control device for controlling an IR controllable device, the control device comprising:

a RF receiver for receiving from the first control device a RF control signal having a data segment for control information and an IR carrier frequency, wherein the IR carrier frequency is extracted by the first control device from a received IR control signal having the IR carrier frequency; and

an IR transmitter for transmitting a first IR control signal for controlling the IR controllable device, the first IR control signal having a data segment for the control information and having a carrier with the IR carrier frequency.

34. (previously presented) The control device of claim 33 wherein the RF control signal corresponds to the received IR control signal.

35. (previously presented) A control device for extending an effective control range of a first control device for controlling an IR controllable device, the control device comprising:

a receiver for receiving from the first control device a first control signal having an IR carrier frequency and having a data segment for control information, wherein the receiver extracts the IR carrier frequency from the first control signal; and

an IR transmitter for receiving the extracted IR carrier frequency and transmitting an IR control signal for controlling the IR controllable device, the IR control signal having a data segment for the control information and having a carrier with the extracted IR carrier frequency.

36. (previously presented) The control device of claim 35 wherein the first control signal is an IR signal.

37. (previously presented) A control device for controlling an IR controllable device, the control device comprising:

a transmitter for transmitting a first control signal having an IR carrier frequency and a data segment for control information, wherein the first control signal is adapted to be received by a second control device that extracts the IR carrier frequency and produces an IR control signal having a data segment for the control information, and having a carrier with the extracted IR carrier frequency.

38. (previously presented) The control device of claim 37 wherein the data segment is at least four bits long.

## APPENDIX II - EVIDENCE

NONE.

## APPENDIX III - RELATED PROCEEDINGS

NONE.

## APPENDIX IV - TABLE OF CASES

1. *In re* Gurley, 31 USPQ 2d 1130, (Fed. Cir. 1994).

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Signature Lori Kleeman Date: November 8, 2006

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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

| | | |
|---|---|---|
| **Applicant** | **:** | **Michel Anthony Pugel** |
| **Serial No.** | **:** | **09/853,001** |
| **Atty. Docket No.:** | | **PU010081** |
| **Filed** | **:** | **May 10, 2001** |
| **For** | | **:ECONOMICAL EXTENSION OF THE OPERATING DISTANCE OF AN RF REMOTE LINK ACCOMMODATING IR REMOTE CONTROLS HAVING DIFFERING IR CARRIER FREQUENCIES** |
| **Examiner** | **:** | **Shi K. Li** |
| **Art Unit** | **:** | **2633** |

## RESPONSE TO NOTIFICATION OF NON-COMPLIANT APPEAL BRIEF

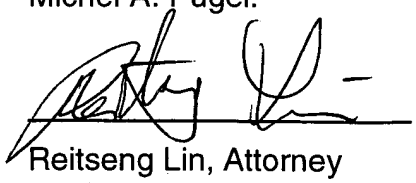
**Mail Stop Appeal Brief - Patents**
**Commissioner for Patents**
**P.O. Box 1450**
**Alexandria, Virginia 22313-1450**

**Sir:**

In response to the Notification of Non-Compliant Appeal Brief dated October 10, 2006, Appellant hereby submits an entirely new appeal brief adding appendices for evidence and related proceeding in accordance with 37 C.F.R. §41.37(c) for the above-referenced application.

Respectfully submitted,

Michel A. Pugel.

By: 

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Signature Lori Kleweno Date: November 8, 2006